

29. The photoresist composition of claim 27 wherein the photoacid-labile acrylate groups comprise tert-butyl, adamantyl or norbornyl groups.

30. The photoresist composition of claim 26 wherein the polymer is completely free of aromatic groups.

31. The photoresist composition of claim 26 wherein polymer units are crosslinked by a separate crosslinker component.

32. The photoresist composition of claim 31 wherein prior to reaction with the polymer the crosslinker component is an unsaturated compound.

33. The photoresist composition of claim 31 wherein prior to reaction with the polymer the crosslinker component is a vinyl ether.

34. The photoresist composition of claim 31 wherein prior to reaction with the polymer the crosslinker component is 1,4-butaneidvinyl ether, 1,6-hexanedivinyl ether, 1,4-cyclohexane dimethanoldivinyl ether or bis-vinylether-ethane ether.

35. A method for forming a photoresist relief image, comprising:

a) applying a layer of a positive-acting photoresist composition on a substrate, the photoresist composition comprising a photoactive component and a polymer that is substantially free of aromatic groups and comprises 1) units crosslinked to other polymer units and 2) photoacid-labile groups; and

b) exposing and developing the photoresist layer on the substrate to yield a photoresist relief image.

36. The method of claim 35 wherein the substrate is a microelectronic wafer.
37. The method of claim 35 wherein the photoresist layer is exposed to patterned radiation having a wavelength of less than 200 nm.
38. The method of claim 35 wherein the photoresist layer is exposed to patterned radiation having a wavelength of 193 nm.
39. The method of claim 35 wherein the photoresist layer is exposed to patterned radiation having a wavelength of 157 nm.
40. The method of claim 35 wherein the polymer comprises acrylate photoacid-labile groups.
41. The method of claim 35 wherein the photoacid-labile groups comprise acrylate esters that comprise a tertiary non-cyclic alicyclic group or a secondary or tertiary alicyclic group.
42. The method of claim 35 wherein the photoacid-labile acrylate groups comprise tert-butyl, adamantlyl or norbornyl groups.
43. The method of claim 35 wherein the polymer is completely free of aromatic groups.
44. The method of claim 35 wherein polymer units are crosslinked by a separate crosslinker component.

45. The method of claim 35 wherein prior to reaction with the polymer the crosslinker component is an unsaturated compound.

46. The method of claim 35 wherein prior to reaction with the polymer the crosslinker component is a vinyl ether.

47. The method of claim 26 wherein substrate areas bared of photoresist by development are chemically etched.

48. The method of claim 37 wherein substrate areas bared of photoresist by development are chemically etched.

REMARKS

Claims 1-25 have been cancelled without prejudice, and claims 26-48 have been added. No new matter has been added by virtue of the new claims. For instance, support for the new claims appears at page 3, lines 12-20 and the original claims of the application.

Claims 1-18 and 20-22 were rejected under 35 U.S.C. 112, second paragraph.

Claims 16-18, 22 and 24-25 were rejected under 35 U.S.C. 112, second paragraph.

For the sake of brevity, the two Section 112, second paragraph formalities-type rejections are addressed in combination.